

STATE OF CALIFORNIA
Department of Transportation
Nonleafing Aluminum Finish Paint,
Waterborne Acrylic Latex Vehicle
(Specification PWB-159D)

SCOPE

This specification covers a two-component, waterborne nonleafing aluminum paint suitable for use as a first coat when topcoated with PWB 160F. The nonleafing surface is meant as a contrast coat for PWB 160F. This coating is intended for spray application, limited application can be made by brushing or rolling. This paint is an industrial maintenance coating and is not for residential use.

REQUIREMENTS

General:

This specification is intended to specify paint that will meet service requirements for bridge construction and maintenance. All properties listed shall be maintained for a minimum of one year after the date of manufacture. If the vendor is making this paint for the first time, the Transportation Laboratory in Sacramento must be consulted.

Materials:

The raw materials for use in the paint formula shall conform to the specifications designated.

QUALITY ASSURANCE

All paint intended for use by the California Department of Transportation (Department) must be sampled, tested and approved by the Transportation Laboratory **before** shipment. The manufacturer shall take a representative one-quart sample of each batch of paint and ship the samples to the Transportation Laboratory for approval, unless other arrangements have been made. Raw materials and copies of batch records used in the manufacture of the paint shall be submitted if requested.

Transportation Laboratory, Chemical Testing Branch, 5900 Folsom Blvd., Sacramento, CA 95819, attn.: Lisa Dobeck, Fax (916) 227-7168.

A batch shall be that amount of paint that was manufactured and packaged in a single operation. The paint container shall be labeled with, but not limited to, the State Specification number, date of manufacture and batch number. The Department also reserves the right to retest any batch after delivery. Results from such retesting shall prevail over all other tests and will be the basis of rejection. Material not meeting the specification shall be removed and replaced by the supplier at their expense, including all costs for handling, retesting and shipping.

All tests shall be conducted in accordance with the appropriate ASTM test methods referenced under the “Characteristics of Mixed Paint” section of this document and methods used by the Transportation Laboratory.

Patents:

The contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State of California, and its duly authorized representatives from all suits at law or action of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

Composition:

This paint is a two-component coating consisting of an aluminum paste mixed with an acrylic latex vehicle. Each kit shall be supplied with 24 ounces of the specified aluminum paste for each gallon of vehicle.

Pigment:

Water-dispersible Aluminum Paste: (1)

Characteristics of Pigment:

Nonvolatile content, percent, ASTM Designation: D 480 72 min.

Vehicle

<u>Component</u>		<u>Weight percent</u>	<u>(LB/100 gallons)</u>
Acrylic Latex	(2)	88.26	755.0
2,2,4-Trimethylpentanediol-1,3-monoisobutyrate		4.68	40.0
Ammonium Hydroxide (28%)		0.47	4.0
Defoamer	(3)	0.35	3.0
Preservative	(4)	0.05	0.4
Premix (5) and (6) together,			
Thickener	(5)	~ 0.23~	2.0
2-(2-Methoxyethoxy)ethanol }	(6)	5.85	50.0
Lamp Black Dispersion	(7)	0.12	1.0

Characteristics of Vehicle:

Density, grams per milliliter, ASTM Designation: D 1475 1.01 to 1.03

Nonvolatile content, percent, ASTM Designation: D 2369 36.2-38.5

Viscosity, poise, ASTM Designation: D2196, Test Method A,
50 RPM, #3 spindle 11-15

High-shear viscosity, poise, ASTM Designation: D 4287,
0 to 5-P cone, shear rate 12 000 s⁻¹ 0.5 to 0.7

pH 9.0-9.5

Characteristics of Mixed Paint:

VOC, grams per liter, ASTM Designation: D 6886 240

Nonvolatile Content, volume percent, ASTM Designation: D 2697
(calculated using maximum mix water) 34-35

Dry time at 25°C, 4 mil wet film, ASTM Designation: D 1640
set to touch, hours ½ maximum
dry through, hours 1 maximum

- (1) Hydro Paste® 825 (Silberline)
- (2) Maincote® HG-54D (Rohm and Haas)
- (3) Foamaster® AP (Henkel)
- (4) Proxel® GXL (ICI Americas)
- (5) Acrysol® RM-8W (Rohm and Haas)
- (6) 2-(2methoxyethoxy)ethanol (methyl carbitol)
- (7) Aurasperse® W-7717 (Englehard) or equivalent

Packaging:

The paint shall be packaged in two separate containers in quantity such that the entire contents of a container of aluminum paste is mixed with the entire contents of a container of vehicle. All containers shall have removable lids. The containers shall be new, round and of no more than 5-gallon capacity. Pails larger than 4 gallons shall be standard, full open head. One gallon and larger containers shall have ears and bails. All containers shall be suitably lined or constructed so as to prevent any reaction between the container and contents and also must comply with U.S. Department of Transportation or I.C.C. Regulations as applicable.

Labels must be marked with the volatile organic content (VOC), mixing instructions, and the following proviso in addition to any other labeling required:

THIS PAINT MUST BE MIXED FOLLOWING LABEL DIRECTIONS PRIOR TO USE.
PAINT MUST BE USED WITHIN 24 HOURS OF MIXING.
DO NOT PLACE MIXED PAINT IN SEALED CONTAINERS

Mixing Procedure (for mixing a 5 gallon unit):

Add 1 to 2 quarts of potable water to the aluminum paste and mix to a smooth, lump-free consistency. Slowly stir in the vehicle. Mix well, but avoid incorporating air into the paint. Strain the mixed paint through a double layer of cheesecloth or equivalent strainer prior to use. The paint must be mixed fresh each day.

Application:

The mixed paint shall be applied to a total dry film thickness of 1.5 mil minimum and 3 mil maximum. This coating is intended for spray application, however limited application can be made by brush. Paint should not be applied when the ambient or surface temperature is above 38°C or below 10°C, when the relative humidity exceeds 75 percent, or when the surface temperature is less than 3°C above the dew point.

Clean-up:

Use tap water for clean-up. 10% ammonia, acetone or other suitable solvent may be used to remove dried paint from spray guns and other equipment.